

LESSON

19

What is static electricity?

Did you ever walk across a rug, touch something, and get a shock? That shock was caused by **static electricity** [STAT ik i leck TRISS it ee]. Static means not moving. Static electricity is electricity that is not moving along a path. What causes static electricity?

To understand what causes static electricity, you have to know about the atom. Scientists have learned that all matter is made up of tiny parts called atoms. An atom is the smallest part of an element that has all of the properties of that element.

Atoms have charges of electrical energy. There are two kinds of charges. There are positive (plus or +) charges. There are also negative (minus or -) charges. An atom has both positive and negative charges.

Usually, an atom has the same number of positive charges as it has negative charges. The positive and negative charges cancel each other out. The charges are balanced. The atom is **neutral** [NEW trul]. A neutral atom has no electrical charge.

Sometimes, the positive and negative charges of an atom are not equal. Then the atom is not neutral. If the atom has more positive charges than negative charges, the whole atom has a positive charge. If there are more negative charges, the whole atom has a negative charge.

Matter that has charged atoms has static electricity.

Static electricity can develop in several ways. One way is by rubbing certain substances together. The rubbing of one object against another object is called **friction** [FRIK shun]. Static electricity is sometimes called friction electricity.

Static electricity is not the same as the electricity we use for light bulbs, motors, toasters and other electrical appliances.

PLUS AND MINUS CHARGES

Charged matter may have a plus (+) charge or a minus (-) charge.

- Opposite charges attract.
- A plus or minus charge and a neutral charge also attract.
- Same charges repel.

Four of these pairs will attract. Two pairs will repel.

Which pairs will attract?
Which pairs will repel?
Write your answers below.

+ and +
+ and -
- and -
- and +
neutral and +
neutral and -

ATTRACT

REPEL

A balloon rubbed with a flannel cloth will stick to the cloth.

Do the balloon and the cloth have static electricity? _____

If so, do they have like charges, or opposite charges?

A second balloon is rubbed with the same flannel cloth. This balloon also sticks to the cloth.

Do the first balloon and the second balloon have like charges, or opposite charges?

If the charge on the flannel cloth is positive, what is the charge on the two balloons?

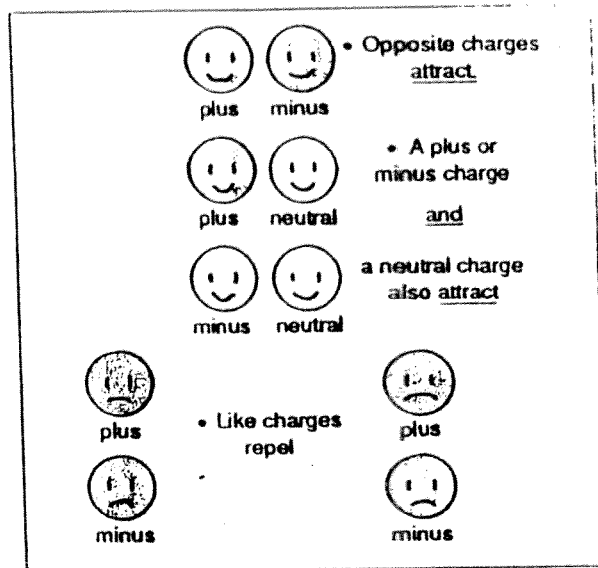


Figure A